

HPV16 E7 (716-325): sc-51951

BACKGROUND

The HPV E7 proteins are small zinc-binding phosphoproteins that are localized in the nucleus. They are structurally and functionally similar to the E1A protein of subgenus C adenoviruses. The CR2 homology region contains the LXCXE motif (residues 22-26) involved in binding to the tumor suppressor protein pRb. This sequence is also present in SV40 and Polyoma large T antigens. The high risk HPV E7 proteins (e.g. HPV16 E7 and HPV18 E7) have an approximately ten-fold higher affinity for pRb protein than the low risk HPV E7 proteins (e.g. HPV6 E7). Association of the E7 protein with pRb promotes cell proliferation by the same mechanism as the E1A proteins of adenoviruses and SV40 large T antigen. Research has shown that E7 promotes degradation of Rb family proteins rather than simply inhibiting their function by complex formation. The CR2 region also contains the casein kinase II phosphorylation site (residues 31 and 32). HPV16 and 18 are strongly associated with cervical, vaginal and vulvar malignancies.

REFERENCES

1. Reich, N.C., et al. 1983. Two distinct mechanisms regulate the levels of a cellular tumor antigen, p53. *Mol. Cell. Biol.* 3: 2143-2150.
2. zur Hausen, H. and Schneider, A. 1987. The role of papillomaviruses in human angioepithelial cancer. In Howley, P.M. and Salzman, N.P., eds., *The Papovaviridae*, 2 Papillomaviruses. New York: Plenum, 245-263.
3. Munger, K., et al. 1989. Complex formation of human papillomavirus E7 proteins with the retinoblastoma tumor suppressor gene product. *EMBO J.* 8: 4099-4105.

SOURCE

HPV16 E7 (716-325) is a mouse monoclonal antibody raised against full length E7 protein of HPV16 origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

HPV16 E7 (716-325) is recommended for detection of E7 of HPV16 origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for HPV16 E7 siRNA (hvp): sc-270423, HPV16 E7 shRNA Plasmid (hvp): sc-270423-SH and HPV16 E7 shRNA (hvp) Lentiviral Particles: sc-270423-V.

Molecular Weight of HPV16 E7: 21 kDa.

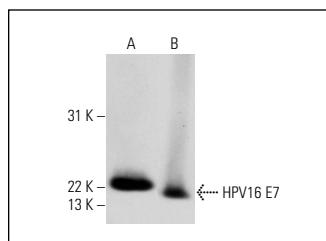
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

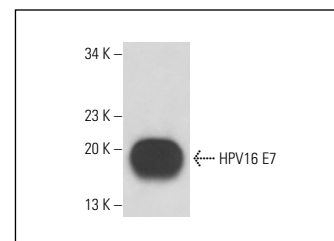
RESEARCH USE

For research use only, not for use in diagnostic procedures.

DATA



HPV16 E7 (716-325): sc-51951. Western blot analysis of HPV16 E7 expression in Ca Ski whole cell lysate under reducing (A) and non-reducing (B) conditions.



HPV16 E7 (716-325): sc-51951. Western blot analysis of HPV 16 E7 expression in Ca Ski whole cell lysate.

SELECT PRODUCT CITATIONS

1. Zheng, Y., et al. 2008. Enhancement of immunotherapeutic effects of HPV16 E7 on cervical cancer by fusion with CTLA4 extracellular region. *J. Microbiol.* 46: 728-736.
2. Guo, C.P., et al. 2011. Potent anti-tumor effect generated by a novel human papillomavirus (HPV) antagonist peptide reactivating the pRb/E2F pathway. *PLoS ONE* 6: e17734.
3. Zong, J., et al. 2013. Human HSP70 and HPV16 E7 fusion protein vaccine induces an effective antitumor efficacy. *Oncol. Rep.* 30: 407-412.
4. Zhang, M., et al. 2015. *In vitro* 3-dimensional tumor model for radiosensitivity of HPV positive OSCC cell lines. *Cancer Biol. Ther.* 16: 1231-1240.
5. Callejas-Valera, J.L., et al. 2016. mTOR inhibition prevents rapid-onset of carcinogen-induced malignancies in a novel inducible HPV-16 E6/E7 mouse model. *Carcinogenesis* 37: 1014-1125.
6. Todorovic, M., et al. 2017. A cellular model for the investigation of depot specific human adipocyte biology. *Adipocyte* 6: 40-55.
7. Wang, Y.X., et al. 2018. HPV16 E7 increases COX-2 expression and promotes the proliferation of breast cancer. *Oncol. Lett.* 16: 317-325.
8. Tomita, T., et al. 2020. A masked initiation region in retinoblastoma protein regulates its proteasomal degradation. *Nat. Commun.* 11: 2019.
9. von Witzleben, A., et al. 2021. Correlation of HPV16 gene status and gene expression with antibody seropositivity and TIL status in OPSCC. *Front. Oncol.* 10: 591063.
10. Lou, H., et al. 2022. HPV16 E7 nucleotide variants found in cancer-free subjects affect E7 protein expression and transformation. *Cancers* 14: 4895.



See **HPV16 E7 (ED17): sc-6981** for HPV16 E7 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.